

REMARKS

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority and receipt of the certified copy of the priority document. Responsive to the Office Action mailed on May 13, 2004 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Claims 1-14 are pending. Claims 6 and 11 are objected to for informalities. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shu (US 2003/0181016). Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of Shu.

In this paper, claims 6 and 11 are amended according to the suggestion of the Examiner to correct informalities therein. In addition, Fig. 2d has been amended such that the features indicated by reference numerals 202, 203 and 209 conform with those in Figs. 2e and 2f.

Reconsideration of this application as amended is respectfully requested in light of the amendments and the remarks contained below.

Rejections Under 102(e)

Claims 1-14 are pending. Claims 6 and 11 are objected to for informalities. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shu.

With reference to Figs. 2D-2E and paragraph 26, the office action states that Shu teaches "etching the photoresist layers 230, 240 at an angle (25-90 degree) until the dense trench area and the less dense trench area in the semiconductor substrate are exposed to leave the photoresist layer in the trenches."

Shu does not teach or suggest a method for filling a uniform mask layer or bottom electrode in a trench comprising the steps of, *inter alia*, etching a mask/photoresist layer at an angle until the

dense trench area and the less dense trench area in the semiconductor substrate are exposed to leave the mask/photoresist layer in the trenches, as recited in claims 1, 4 and 9.

MPEP 2131 prescribes that to anticipate a claim, a reference must teach every element of the claim. In this regard, the Federal Circuit has held:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

In Shu, an **exposure process** is performed at an angle on photoresist layers 230 and 240 outside the trenches 212 and 214, in which the angle between the radiating direction of the light source and the normal direction is approximately 25-90 degrees. See Fig. 2D and paragraph 26 of Shu. Subsequently, a developing process is performed to remove the photoresist layers 230 and 240 above the level of the deep trenches 212 and 214. See Fig. 2E and paragraph 27 of Shu.

Claims 1, 4 and 9, on the other hand, recite an **etching process** performed at an angle to remove the mask layer (claim 1) or photoresist layer (claims 4 and 9) until the dense trench area and the less dense trench area in the semiconductor substrate are exposed to leave the mask/photoresist layer in the trenches. It is well known in the art that an exposure process is distinct from an etch process.

Applicant therefore submits that Shu does not teach or suggest each and every element set forth in claims 1, 4 and 9. For at least this reason, Applicant respectfully submits that claims 1, 4, and 9 are in condition for allowance. Insofar as claims 2-3, 5-8 and 10-14 depend from claims 1, 4 and 9, respectively, it is Applicant's belief that these claims are also novel over Shu.

Double Patenting Rejections

Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of Shu.

In support of these rejections, the office action states only that "[a]lthough the conflicting claims are not identical, they are not patentably distinct from each other because of the wording of pad layer, shielding layer, and higher number of trenches etc. are similar to the liner, mask layer, and dense trench area, respectively."

The double patenting rejections of claims 1-14 are insufficient, insofar as they do not comply with the requirements of MPEP 707.07 *et seq.*, which requires that all rejections be stated with completeness and clarity.

MPEP 707.07(d) requires that the grounds of a rejection be "fully and clearly stated." The office action fails to meet this requirement in the present application in connection with claims 1-14.

MPEP 804 states in part:

Any obviousness-type double patenting rejection should make clear:

- (A) The differences between the inventions defined by the conflicting claims — a claim in the patent compared to a claim in the application; and
- (B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim in issue is an obvious variation of the invention defined in a claim in the patent.

Applicant submits that simply pointing out that the "pad layer, shielding layer, and higher number of trenches etc. are similar to the liner, mask layer, and dense trench area" does not address or compare the scope and content of claims 1-14 of the present application relative to claims 1-8 in Shu with completeness and clarity. For at least this reason, Applicant requests that the double patenting rejections of claims 1-14 be withdrawn and the claims passed to issue.

Appl. No. 10/645,682
Examiner: Tsai, H Jey, Art Unit 2812
In response to the Office Action dated May 13, 2004

Date: August 6, 2004
Attorney Docket No. 10112801

Claims 1-14 of the present application are patentably distinct over claims 1-8 of Shu.

As noted above, in Shu, an **exposure process** is performed at an angle on photoresist layers. In contrast, claims 1, 4 and 9 recite an **etching process** performed at an angle to remove the mask/photoresist layers. Applicant therefore submits that the cited reference and the claimed invention are patentably distinct. For at least this reason, Applicant requests that the double patenting rejections of claims 1-14 be withdrawn and the claims passed to issue.

35 U.S.C. § 103

Applicant further submits that Shu (Pub. No. US 2003/0181016 A1) is not a reference under 35 U.S.C. 103(a) because the reference, and the claimed invention, were, at the time the invention was made, owned by the same person. Please see the following 103(c) statement.

103(c) Statement

Application 10/645,682 and U.S. Pub. 2003/0181016 A1 (Shu) were, at the time the invention of Application 10/645,682 was made, commonly owned by Nanya Technology Corporation, Taiwan.

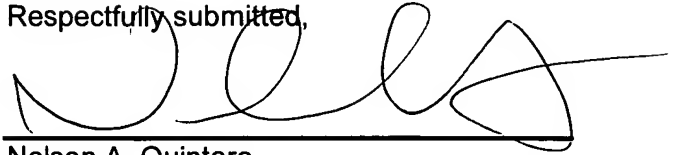
Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully requests so. The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to Deposit Account No. **502447**. In particular, if this response is not timely filed, then the commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 C.F.R. § 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to Deposit Account No. **502447**.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Nelson A. Quintero', written over a horizontal line.

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